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INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Use as many sheets as necessary)		Application Number	10/624,993		
		Filing Date	July 22, 2003		
		First Named Inventor	Svetlana A. SUKHISHVILI, ET AL.		
		Art Unit	1615		
		Examiner Name	Caralynne HELM		
Sheet	1	of	4	Attorney Docket Number	101995.013901

U. S. PATENT DOCUMENTS					
Examiner Initials	Cite No. ¹	Document Number	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		Number-Kind Code ² (if known)			
	1	US 6,511,749	01-28-2003	Mathiowitz et al	
	2	US 2004/0013721 A1	01-22-2004	Antipov et al.	
	3	US 2005/0163714 A1	07-28-2005	Sukhishvili et al.	
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FOREIGN PATENT DOCUMENTS					
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		WO-03/035278-A1	5/1/2003	Massachusetts Institute of Technology	
		WO-99/47252	9/23/1999	Max-Planck-Gesellschaft	
		WO-02/17888	3/7/2002	Max-Planck-Gesellschaft	

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NON PATENT LITERATURE DOCUMENTS

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	1	J. Kost, R. Langer, Responsive Polymeric Delivery Systems, 46 ADVANCED DRUG DELIVERY REVIEWS 125-148 (2001)	
	2	G.B. Sukhorukov et al., pH Controlled Macromolecule Encapsulation in and Release from Polyelectrolyte Multilayer Nanocapsules, 22 MACROMOL. RAPID COMMUN. 44 (2001)	
	3	G. Decher and J.D. Hong, Buildup of Ultrathin Multilayer Films by a Self-Assembly Process: I. Consecutive Adsorption of Anionic and Cationic Bipolar, 46 MACROMOL. SYMP. 321 (1991).	
	4	P. Fisher, et al., Polyelectrolytes Bearing Azobenzenes for the Functionalization of Multilayers, 137 MACROMOL. SYMP. 1 (1999)	
	5	G.B. Sukhorukov et al., Stepwise Polyelectrolyte Assembly on Particle Surfaces: a Novel Approach to Colloid Design, 9 POLYM. ADV. TECHNOL. 759 (1998)	
	6	A.A. Antipov, et al., Sustained Release Properties of Polyelectrolyte Multilayer Capsule, 105 J. PHYS. CHEM. B 2281 (2001)	
	7	X. Qiu et al., Permeability of Ibuprofen in Various Polyelectrolyte Multilayers, 286 MATER. ENG. 591 (2001)	
	8	F. Caruso et al., Microencapsulation of Uncharged Low Molecular Weight Organic Materials by Polyelectrolyte Multilayer Self-Assembly, 16 LANGMUIR 8932 (2000)	
	9	F. Caruso et al., Enzyme Encapsulation in Layer-by-Layer Engineered Polymer Multilayer capsules, 16 LANGMUIR 1485 (2000)	

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	10	F. Albert Cotton and Geoffrey Wilkinson, ADVANCED INORGANIC CHEMISTRY 90-94 (5 th Ed., 1988)	
	11	G.B. Sukhorukov et al., Layer-by-Layer Self Assembly of Polyelectrolytes on Colloidal Particles, 137 COLLOIDS SURF. A: Physiochem. Eng. Aspects 253 (1998)	
	12	F. Caruso et al., Electrostatic Self-Assembly of Silica Nanoparticle-Polyelectrolyte Multilayers on Polystyrene Latex Particles, 120 J. AM. CHEM. SOC. 8523 (1998)	
	13	J.B. Schlenoff et al., Sprayed Polyelectrolyte Multilayers, 16, LANGMUIR 9968 (2000)	
	14	G.B. Sukhorukov et al., Microencapsulation by Means of Step-Wise Adsorption of Polyelectrolytes, 17 J. MICROENCAPSULATION 177 (2000)	
	15	V. Kozlovskaya et al., Hydrogen-Bonded Polymer Capsules Formed by Layer-by-Layer Self-Assembly, 36 MACROMOLECULES 8590-8592 (2003)	
	16	Shi et al., Release Behavior of Thin-Walled Microcapsules Composed of Polyelectrolyte Multilayers LANGMUIR 2036 (2001)	
	17	A.A. Antipov et al., Carbonate Microparticles for Hollow Polyelectrolyte Capsules Fabrication, 224 COLLOIDS SURF. A: Physiochem. Eng. Aspects 175 (2003)	
	18	M. Adamczyk et al., Immunoassay Reagents for Thyroid Testing 1. Synthesis of Thyroxine Conjugates, 5 BIOCONJUGATE CHEM. 459 (1994)	

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	19	T. Serizawa et al., Thermoresponsive Ultrathin Hydrogels Prepared by Sequential Chemical Reactions, 35 MACROMOLECULES 2184 (2002)	
	20	Antipov et al., Polyelectrolyte Multilayer Capsule Permeability Control, 198-200 COLLOIDS AND SURFACES A: PHYSIOCHEM. ENG. ASPECTS (2002) 535	
	21	Shchukin et al., Micron-Scale Hollow Polyelectrolyte Capsules with Nanosized Magnetic Fe ₃ O ₄ Inside, 57 MATERIALS LETTERS 1743 (2003)	
	22	A. Janekovic et al., Preparation of Monodispersed Colloidal Cadmium Compounds, 103 J. COLLOID INTERFACE SCI. 436 (1985)	
	23	A. Antipov et al., Urease-Catalyzed Carbonate Precipitation Inside the Restricted Volume of Polyelectrolyte Capsules, 24 MACROMOL. RAPID COMMUN. 274 (2003)	
	24	K. Park, Controlled Drug Delivery: Challenges and Strategies, (Am. Chem. Soc., Washington, D.C., 1997) *	
	25	R.F. Egerton, Electron Energy-Loss Spectroscopy in the Electron Microscope (2 nd Ed., 1996) *	
	26	International Preliminary Report on Patentability (with International Search Report) issued on April 13, 2006, in connection with International Patent No. PCT/US 2004/032491	
	27	Office Action dated August 26, 2008, received in connection with U.S. Patent Application No. 10/965,922	

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